

WESTBAY® RETROFIT WELL SUMMARY

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Location ID: BLM-37

Field Representatives: Canavan, Giles,
Hunnicut-Mack, McClure, Pearson, Rivera

Purpose of Well: To monitor plume-front contamination and the effectiveness of the
water treatment system for plume stabilization.

Date Started: 4/27/99

Date Completed: 10/1/99

Northing: 221630.18

Easting: 403315.95

Brass Cap: 4546.08' **Outer Casing:** 4547.82' **Inner Casing:** 4547.67'

Drilling Method: Mud Rotary

Drilling Contractor: Stewart Brothers Drilling Company

Driller: Juan Aguilar

Total Depth Borehole: 1020'

Diameter Borehole: 12.25" to 120';
Reamed to 17.5"; 12.25" to TD.

Total Depth Surface Casing: 120'

Diameter Surface Casing: 14" OD

Total Depth Conv. Well Casing: 919.41' **Diameter Conv. Well Casing:** 4.5" OD

Total Depth 1.5" OD Westbay® Casing: 910'

Water First Detected: Not Detected
during drilling

Water Level Open Borehole: 405'
(from geophysical log)

Water Level Conv. Cased
Borehole (post-development SS): 482.86'

Estimated Water Use (pre- development:
76,800 gallons

Sampling Zones

<u>Screened Zone</u>	<u>Sand Pack</u>	<u>Westbay® Zone</u> (packer to packer)	<u>Meas.</u> <u>Port Depth</u>
<u>488.00'</u> to <u>498.04'</u>	<u>482'</u> to <u>507'</u>	<u>485'</u> to <u>505'</u>	<u>490'</u>
<u>638.41'</u> to <u>648.43'</u>	<u>631'</u> to <u>655'</u>	<u>635'</u> to <u>655'</u>	<u>640'</u>
<u>748.68'</u> to <u>758.72'</u>	<u>745'</u> to <u>772'</u>	<u>745'</u> to <u>765'</u>	<u>750'</u>
<u>879.02'</u> to <u>889.06'</u> (continued next page)	<u>876'</u> to <u>896'</u>	<u>875'</u> to <u>895'</u>	<u>885'</u>

Conventional Well Casing UsedDiameter: 4.5" ODStainless Steel Type: 304**Schedule 5**5-foot: 0 = 0 ft10-foot: 0 = 0 ft20-foot: 0 = 0 ftTotal Sch 5 Footage = 0 ftTotal Footage of Blank Risers: 880 ft**Schedule 10**5-foot: 0 = 0 ft10-foot: 2 = 20 ft20-foot: 43 = 860 ftTotal Sch 10 Footage = 880 ftStick-Up: 3.9 ft originally. Cut to 2.0 ft
8/99. Final stick-up (from brass cap) =
1.74 ft**Screen Used**Diameter: 4.5" ODSlot Size: 0.020"Stainless Steel Type: 304**400-600-ft Depth Rating**5-foot: 0 = 0 ft10-foot: 0 = 0 ft20-foot: 0 = 0 ftTotal Footage of Screen: 40 ft**600-1000-ft Depth Rating**5-foot: 0 = 0 ft10-foot: 4 = 40 ft20-foot: 0 = 0 ft**Annular Materials**

Based on field notes and drill reports (approximate totals only).

Sand, grade 10/20100-lb. Bags: 050-lb. Bags : 1114100-lb. Buckets: 050-lb Bags Benseal: 13194-lb. Bags Cement: 90Sand, grade 30/7050-lb. Bags: 64100-lb. Buckets: 0

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Westbay® Casing Used:10-foot: 78 = 780 ft5-foot: 16 = 80 ft2-foot: 1 = 2 ftPacker: 10 = 50 ft Total Footage: 912 ftRegular Couplings: 90 Well Depth: 910 ftPumping Ports: 4 Stick-Up: 2 ft joint; 2.4 ft (0.4 ft above
stainless steel 10/99) Final stick-up
Measurement Ports: 10 (from brass cap) = 1.59 ftEnd Caps: 1Magnetic Collars: 4**Pertinent Field Notes**

For more detail, refer to Field Notebook #s TDP 392/RFI/CMS (pages 36-63);
Development #1 (pages 24-25; 27-53; 62; 65; 67); Westbay® Installation (pages 38; 60-70; 77-78).

- 4/27/99- Mobilized to site, rigged up and mixed mud. Spud borehole. Drilled mud rotary 12 ¼" pilot borehole to 70'-J. Pearson.
- 4/28/99- Drilled pilot borehole from 70'-120'. Reamed borehole to 17 ½" from 0'-120' below ground surface. Installed 14" outside diameter (OD) surface casing to 120'-J. Pearson.
- 4/29/99- Drilled mud rotary 12 ¼" borehole from 120'-220'-J. Pearson.
- 5/4/99- Drilled 220'-415'-M. Rivera.
- 5/5/99- Drilled 415'-505'. Rotary table on drill rig inoperable-M. Rivera.
- 5/6/99- Rotary table was still inoperable. No drilling accomplished-L. Hunnicutt-Mack.
- 5/7/99- Drilled 505'-586'. Repaired rotary table-J. Pearson.
- 5/8/99- Drilled 586'-730'-M. Rivera.
- 5/9/99- Drilled 730'-850'-M. Rivera.
- 5/10/99- Drilled 850'-961'. Borehole was ¼" from hole origin-M. McClure.
- 5/11/99- Drilled 961'-1020' (Total Depth)-J. Pearson.

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Pertinent Field Notes Cont.

5/12/99- Geophysical logging was completed by Southwest Geophysical Services, Inc.-M. Rivera.

5/19/99- Installed 4.5" OD stainless steel casing to 919.41' with 3.9' stick-up. Installed annular materials to 929'-M. Rivera.

5/20/99- Installed annular materials from 929'-745' (just above the third screen)-M. Rivera.

5/21/99- Installed annular materials from 745'-502' (within top screen sand pack)-L. Hunnicutt-Mack.

5/22/99- Installed annular materials from 502'-193'. Grouted from 193' to surface-L. Hunnicutt-Mack.

5/23/99- Topped up cement to surface, tripped tremie pipe out, decontaminated the drill rig, and rigged down-L. Hunnicutt-Mack.

NOTE- Developed (bailed, swabbed, jetted, and pumped) PL-8; completed development (swabbed, jetted, and pumped) at ST-7; completed development (pumped) at BLM-39; and pumped BLM-38 before beginning development at BLM-37.

6/22/99-

6/23/99- Bailed well. 256 gallons removed. Water was cloudy brownish gray- M. Canavan and J. Pearson.

6/28/99-

7/8/99- Swabbed well. 2,720 gallons removed from screen #4. Turbidity was 35.6 NTU; 2,150 gallons removed from screen #3. Water was brownish and not very turbid; 170 gallons from screen #2. No gallons removed from screen #1 (top screen). There was not enough water head to swab-M. Canavan and G. Giles.

7/8/99-

7/9/99- Jetted well. Unchlorinated Well J water was used to jet each screen twice (6,400 gallons; a total of 25,600 gallons was jetted into the well)-M. Canavan and L. Hunnicutt-Mack.

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Pertinent Field Notes Cont.

- 7/10/99-
7/27/99- Pumped well. 9,148 gallons removed from screen #1 (top). The water was very aerated and the pumping rate was very slow. Turbidity was 0.48 NTU; 9,343 gallons removed from screen #2. Turbidity was 0.92 NTU; 9,106 gallons removed from screen #3. Turbidity was between 0.3 and 0.6 NTU; 9,545 gallons removed from screen #4. Turbidity was 0.57 NTU. The pump was changed because of a broken flow meter; therefore, the gallons pumped from screen #4 were an estimate- M. Canavan, G. Giles, L. Hunnicutt-Mack, and M. McClure.
Development complete. Waiting on camera log to install Westbay® casing.
- 8/2/99- Camera logged well. (There was approximately 24 feet of sand in the sump. Sediment filled to 896'.)-G. Giles.
- 8/4/99- Set up for Westbay® MP 38 1.5" OD PVC casing installation. Stainless steel casing sounded at 892' and 896'. The Westbay® well casing was designed to be set at 910'. Additional development was required to remove sand from the sump-G. Giles and M. McClure.
- 8/6/99- Bailed well. Removed approximately 18 feet of sand from the sump. Sump was cleared to 914'-J. Pearson.
- 8/16/99- Camera logged well again. Water was cloudy in several zones. Additional development is required-J. Pearson.
- NOTE- From 8/19/99-8/23/99, all development summaries were taken from the development sheets. No other details were available.
- 8/19/99- Pumped 3,840 gallons from screen four-G. Giles.
- 8/23/99- Pumped 2,028 gallons from screen three; 1,070 gallons from screen two. Turbidity was 1.39 NTU; and 1,004 gallons from screen one. Development complete-M. Canavan and G. Giles.
- 8/24/99- Camera logged the well. Water was cloudy. Westbay® casing installation was suspended to allow particulates in water to settle out.
- 9/7/99- Set up tables, casing, hoses, the tool and tested the injection valve pressure in preparation for Westbay® MP 38 1.5" OD PVC casing installation-M. McClure and M. Rivera.
- 9/8/99- Began Westbay® installation. There were problems with different gauge readings and low flow through the reel. Cut a 30' piece of hose from the reel to use for casing installation. Will have a fitting installed at Aire-Hydraulics tomorrow-M. Canavan and M. Rivera.

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Pertinent Field Notes Cont.

- 9/9/99- Installation resumed with the 30' hose. There was a problem with the line pressure dropping in pressure control unit (PCU) number three. Cleaned tool, adjusted spring, replaced injection valve, and changed to PCU number one. Completed Westbay® casing installation. Began casing integrity (leak) test with a 118' head differential-M. Canavan and L. Hunnicutt-Mack.
- 9/10/99- Completed casing integrity (leak) test. Casing did not leak. Packer inflation suspended until a loaned reel arrives from Westbay®, Inc. Site secured for weekend-L. Hunnicutt-Mack.
- 9/13/99- Configured and tested tool for packer inflation-G. Giles and M. McClure.
- 9/14/99- Tested tool and discovered a line pressure drop problem. Cleaned, replaced parts, and retested injection valve.-L. Hunnicutt-Mack.
- 9/15/99- Tested tool (in packer inflation configuration). There was a problem with the line pressure dropping when testing the hold back valve. Per D. Larssen at Westbay®, Inc., the cracking pressure and the valve reseal pressure contained too large a psi differential. Hold back valve was taken to valve shop for cleaning-M. McClure and M. Rivera.
- 9/16/99- Reassembled tool (in packer inflation configuration) and tested tool with PCU number three-M. McClure and M. Rivera.
- 9/20/99- Inflated packer numbers two, three, four, five, six, and seven (Packer number one was missed). Packer inflation delayed for installation of PL-8-L. Hunnicutt-Mack and M. McClure.
- NOTE- Installed Westbay® casing and inflated packers at PL-8 before continuing packer inflation at BLM-37.
- 9/30/99- Mobilized Westbay® equipment from PL-8 to BLM-37. Exchanged line valve from PCU number two with PCU number one (to obtain one fully functioning PCU). Inflated packer number one-L. Hunnicutt-Mack and M. McClure.
- 10/1/99- Inflated packer numbers nine and ten-M. McClure and M. Rivera. Installation complete. Turned well over to Technicians for Westbay® development.